

Dear Mr. Pabst,

**Thank you for your recent email to Vice President Biden. I have the privilege of replying on his behalf.** We at EPA appreciate you taking the time to write to about the metals emissions in Portland and making us aware of your concerns. As a member of the greater Portland community myself, I take air toxics concerns here seriously. We are working with the Oregon Department of Environmental Quality and others to help you and your community get the information you need and to help find solutions.

The Oregon Department of Environmental Quality found a significant “hot spot” of cadmium and arsenic during air sampling in Portland, Oregon near SE 22nd Ave. and Powell Blvd. DEQ is collecting additional air and soil samples in the affected area, and is working collaboratively with county, state and federal health agencies (Oregon Health Authority, Multnomah County Health Department, and the Agency for Toxic Substances and Disease Registry) to assess and mitigate impacts to public health. EPA is keeping fully informed about this developing situation and is ready to support and assist ODEQ as needed. EPA and ATSDR are evaluating these findings in relation to EPA health standards.

Additional information, including a link to air sampling data and a map, can be found at: <http://www.deq.state.or.us/nwr/metalsemissions.htm>. DEQ's initial findings near the Bullseye Glass facility are that the monthly average is 49 times greater than the state air toxics benchmark for cadmium and 159 times the state air toxics benchmark for arsenic. Also, here are two links to The Oregon Health Authority's web pages that include more information such as fact sheets on health concerns, gardening, information for health care providers, and more:  
<https://public.health.oregon.gov/newsadvisories/Pages/metals-emissions.aspx>.  
[https://public.health.oregon.gov/HealthyEnvironments/HealthyNeighborhoods/Documents/OHA\\_Healthy\\_Gardening\\_10\\_2013.pdf](https://public.health.oregon.gov/HealthyEnvironments/HealthyNeighborhoods/Documents/OHA_Healthy_Gardening_10_2013.pdf)

**While we at EPA are working with Oregon DEQ and others to address emissions from art and architectural glass manufacturing in Portland and nationally, we recognize that concerns about emissions extend beyond that sector. As you know, areas of contamination not near the glass manufacturers were identified in data from moss study of the US Forest Service. Using moss in this manner is a new approach, and there is a need to gain more information from further monitoring near the glass manufacturers that will help develop the best approach to monitor and act on other potential contamination hotspots.**

**The EPA is coordinating with Oregon DEQ to assess where potential public health impacts may be most serious. That information will help to guide any additional monitoring, sampling, and other actions. The DEQ has also committed to take action to address gaps in current state and federal regulations by establishing health or risk based standards for air toxics from industrial facilities. Input from stakeholders – including community members such as you – is important, and will be included in that process.**

At the bottom of this email I'm including a few Q&As that may be helpful to you. I've added you to my e-mail list and I will let you know when new information is available from EPA. Again, thank you for contacting the EPA. If you have any questions, please feel free to contact me.

Sincerely,

## Some Questions and Answers

### How is EPA involved and what is our role?

EPA Region 10 was briefed by DEQ one-week prior to their February 3, 2016 press release. DEQ is the lead agency for implementing the Clean Air Act in Oregon and we are supporting their efforts.

EPA Region 10 jointly inspected Bullseye Glass and Uroboros Glass facilities with DEQ on February 10, to better understand the processes being used and the pollution controls currently in place. This information will help us determine if further action is appropriate under EPA authority.

We are reviewing records to identify other potential sources in the affected area. Federal regional screening levels (RSL) are being compared with the DEQ state health benchmarks in relation to the amount of contamination found in the study to better understand the health impact. EPA continues to support the DEQ, OHA, MCHD and ATSDR efforts to assess, monitor and communicate information as it becomes available.

### Are we determining or confirming the air pollution and/or the source?

ODEQ is keeping EPA informed of their actions to monitor the situation and exposure levels. DEQ conducted air monitoring at nearby schools and day care centers. DEQ is conducting additional air and soil sampling is getting underway. EPA is providing DEQ with additional high volume air sampling equipment and filters to support this effort.

### What federal air regulations apply to glass manufacturing facilities?

EPA has three national standards that potentially apply to glass manufacturing plants. Whether a standard applies can depend on a number of factors, such as startup date, type of furnace, and the amount of glass produced.

- A National Emissions Standards for Inorganic Arsenic Emissions from Glass Manufacturing Plants (issued in 1986), which set emissions limits of 2.7 tons per year for arsenic, or 85 percent control for existing glass-melting furnaces; for new or modified glass melting furnaces, the limit is 0.44 tons or 85 percent control.
- Standards of Performance for Glass Manufacturing Plants (issued in 1980), which set performance standards to limit emissions particulate matter (PM). Limiting particulate matter also limits emissions of lead and other toxic metals.

A 2007 National Emissions Standard Hazardous Air Pollutants for Glass Manufacturing Area Sources, which sets emissions limits for plants that emit less than 10 tons a year of a single air toxic, or less than 25 tons a year of a combination of toxics. Manufacturers subject to the 2007 standards must meet either a PM limit of 0.2 pounds of PM per ton of glass produced, or a limit of 0.02 pounds of metal air toxics per ton of glass produced.

What type of pollution controls should glass manufacturers use?

Because glass melts at a very high temperature, a glass facility would need to use multiple steps to control their metal emissions – including changing the pollutants from a vapor to a particle using cooling or specialized sorbents and then removing the particles using a control device such as an electrostatic precipitator or a baghouse.

Design of controls for these facilities is customized and complex and may include multiple types of control equipment based on the types of glass the facility is making and the pollutants the processes emit.

Do we know any more about the USFS role or study mentioned in the news media?

The study was a collaborative effort between US Forest Service and DEQ to better understand the sources and distribution of toxic metals, including arsenic and cadmium, air pollution in Portland. EPA has requested a copy of the study as soon as it is published.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10**

1200 Sixth Avenue, Suite 900  
Seattle, WA 98101-3140

OFFICE OF  
AIR, WASTE, AND TOXICS

DRAFT – February 18, 2016

[each member will get their own letter]  
The Honorable Ron Wyden  
United States Senate  
Washington, D.C. 20510

Dear Senator Wyden:

Thank you for your letter of February 12, 2016 to the U.S. Environmental Protection Agency (EPA) Administrator Gina McCarthy expressing your concerns about the developing air toxics situation in Portland, Oregon. In your letter you requested the EPA to assist in responding to the public health concerns associated with the localized elevated emissions of toxic metals from stained glass manufacturing facilities. The Administrator asked that I respond on her behalf.

I want to assure you that the EPA is already very engaged in this issue. We are communicating and coordinating closely with our state partners, at levels of staff and management and we are providing significant assistance to the Oregon Department of Environmental Quality (ODEQ) and the Oregon Health Authority (OHA). I feel it is important to note that the State of Oregon is demonstrating the needed leadership in this situation and we want to support them in any way we can as well as do what is needed at the Federal level.

Last week we conducted joint inspections of the two art glass facilities with ODEQ, we are providing specialized equipment, and we are providing on-going assistance from the EPA's technical experts including risk assessors and staff with specialized expertise in the glass manufacturing sector and in emergency response (more details on this below). The University of Washington Pediatric Environmental Health Specialty Unit, which the EPA helps fund, is also supporting OHA. In addition, I personally have been in regular and frequent contact with ODEQ Director Dick Pedersen over the past several weeks to stay directly informed of what's happening and to be sure the EPA provides whatever support we can to the State of Oregon in real time.

You requested that the EPA respond decisively in three key ways: 1) To aid Portland and the State of Oregon in assessing public health risks; 2) Updating federal standards for facilities like those implicated here; and 3) Increasing air quality monitoring, modeling, and research. I will address each of these requests below.

Immediate Response and Risk Assessment

The State of Oregon is taking a strong leadership position in responding to this situation and the EPA is providing assistance to Portland and the State of Oregon on a number of fronts. The EPA enforcement staff, including an EPA national expert on glass manufacturing, have accompanied State of Oregon staff on inspections of the two Portland facilities. The EPA has loaned monitoring equipment to the State of

Oregon to collect air samples to analyze for heavy metals. The EPA has also offered the loan of equipment to analyze soil samples as well as access to one of the EPA's science and technical assistance contractors. The EPA air and cleanup staff are assisting in the development of air and soil sampling programs. The EPA risk assessors are working with the OHA, Multnomah County Health Department, and the Agency for Toxic Substances and Disease Registry (ATSDR) to help assess and communicate the public health risks as information becomes available on concentrations of metals in the air and soil. The EPA air technical staff will also be providing information on technologies available to control emissions from glass manufacturing facilities.

#### Update Federal Emissions Standards for Area Sources

The Clean Air Act requires the EPA to regulate emissions of 187 toxic air pollutants (also called hazardous air pollutants) from a published list of industrial sources referred to as "source categories." Since sources may release more than one toxic chemical, it makes sense to regulate air toxics by sources rather than individual pollutants. As required under the Act, the EPA has developed a list of source categories that must meet control technology requirements for these toxic air pollutants. The EPA is required to develop regulations (also known as rules or standards) for all industries that emit one or more of the pollutants in significant quantities – referred to as "major sources."

The EPA sets National Emission Standards for Hazardous Air Pollutants (NESHAP) for major sources that have actual or potential emissions at or above the major source threshold for any air pollutant. The major source thresholds for hazardous air pollutants (HAP) are 10 tons/year for a single HAP or 25 tons/year for any combination of HAP. However, some non-major sources – referred to as "area sources" – are also subject to NESHAP. Examples of area sources include hazardous waste combustors, Portland cement manufacturers, copper smelting and glass manufacturing.

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In your letter, you urged the EPA to begin the process of updating these federal standards and, as appropriate, consider reclassifying these plants as a unique category or subcategory. At this time, we are gathering information to better understand art glass manufacturing plants across the country – e.g., locations, air emissions, pollution controls, business operations, etc. Our current information indicates that there are between 7 and 13 significant art glass manufacturing plants. Further understanding of these facilities will inform what actions we take to review and, if necessary, revise the current federal emission standards. Our immediate attention will continue to support ODEQ and OHA as they take

responsive and appropriate action to deal with the air quality concerns raised in Portland.

You also suggested that the EPA convene a group of industry, public health, and other appropriate stakeholders and experts to identify technological or process improvements that could reduce emissions from these sources in the near-term. I wish to note that thanks to the efforts of the state, the companies have volunteered to stop using the compounds which are likely responsible for the toxic emissions found in the air monitoring near the school. While this might provide immediate relief for the surrounding communities, a longer-term solution is called for. So, continued collection of information about art glass manufacturing plants across the country will be important to determine how these plants can best operate in an environmentally safe manner. The EPA and state representatives are currently having discussions on controlling air pollution from these plants and will involve the individual plants, as necessary. We will also consider the best means of having the broader discussions you suggested.

Finally, as part of its efforts to manage emissions of HAP, the EPA's Toxics Release Inventory (TRI) and National-scale Air Toxics Assessment (NATA) play important roles. The TRI is an EPA program that tracks the management of certain toxic chemicals that may pose a threat to human health and the environment. This information is submitted by thousands of U.S. facilities on over 650 chemicals and chemical categories under the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Pollution Prevention Act (PPA). The NATA is the EPA's comprehensive evaluation of air toxics across the U.S. These assessments provide screening-level estimates of the risk of cancer and other serious health effects from breathing (inhaling) air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types, and locations that are of greatest potential concern in terms of contribution to population risk. This in turn helps air pollution experts focus limited analytical resources on areas or populations where the potential for health risks are highest. However, it must be recognized that both of these rely on the information reported to the EPA and not all emissions of air toxics are required to be reported.

#### Air Quality Monitoring

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The EPA's air toxics monitoring efforts are largely complementary to state and local efforts and include: (1) The EPA's long-term National Air Toxics Trends Sites (NATTS) operating in 27 cities, including Portland, and (2) providing grant funding to state, local, and tribal air agencies for air monitoring and supporting a competitive grant program for community-scale air toxics monitoring. Since 2003, the EPA has provided \$26.8M for 70 projects across the country. Last year alone, we provided more than \$5M for 11 projects.

Finally, the EPA, through both its Office of Research and Development and Office of Air and Radiation, is committed to evaluating newer sensor technology for air pollutants, such as air toxics, with the hope that this technology can help with air quality characterization in many more locations than we are currently able to monitor. While this technology is not sufficiently advanced today for most air toxics pollutants, the EPA expects advancements to occur in the years ahead.

Again, thank you for your letter. If you have further questions, please contact me, or your staff may

contact Mathew Davis in the EPA's Office of Congressional and Intergovernmental Relations at [davis.matthew@epa.gov](mailto:davis.matthew@epa.gov) or (202) 564-1267.

Sincerely,

Dennis McClerran  
Regional Administrator

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AIR, WASTE, AND TOXICS

DRAFT – February 18, 2016

[Add appropriate addressees and salutations for a letter to three Congressionals]

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I want to assure you that the EPA is already very engaged in this issue. We are communicating and coordinating closely with our state partners, at levels of staff and management and we are providing significant assistance to the Oregon Department of Environmental Quality (ODEQ) and the Oregon Health Authority (OHA). I feel it is important to note that the State of Oregon is demonstrating the needed leadership in this situation and we want to support them in any way we can as well as do what is needed at the Federal level.

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stakeholders and experts to identify technological or process improvements that could reduce emissions from these sources in the near-term. I wish to note that thanks to the efforts of the state, the companies have volunteered to stop using the compounds which are likely responsible for the toxic emissions found in the air monitoring near the school. While this might provide immediate relief for the surrounding communities, a longer-term solution is called for. So, continued collection of information about art glass manufacturing plants across the country will be important to determine how these plants can best operate in an environmentally safe manner. The EPA and state representatives are currently having discussions on controlling air pollution from these plants and will involve the individual plants, as necessary. We will also consider the best means of having the broader discussions you suggested.

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[Add appropriate addressees and salutations for a letter to three Congressionals]

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You requested that the EPA respond decisively in three key ways: 1) To aid Portland and the State of Oregon in assessing public health risks; 2) Updating federal standards for facilities like those implicated here; and 3) Increasing air quality monitoring, modeling, and research. I will address each of these requests below.

Immediate Response and Risk Assessment

The State of Oregon is taking a strong leadership position in responding to this situation and EPA is providing assistance to Portland and the State of Oregon on a number of fronts. EPA enforcement staff, including an EPA national expert on glass manufacturing, have accompanied Oregon staff on inspections of the two Portland facilities. The EPA has loaned Oregon monitoring equipment to collect and analyze air and soil samples for heavy metals. EPA air and cleanup staff are assisting in the development of air and soil sampling programs and have provided access to one of EPA's science and technical assistance contractors. EPA risk assessors are working with the Oregon Health Authority, Multnomah County Health Department, and the Agency for Toxics Substances and Disease Registry to

help assess and communicate the public health risks as information becomes available on concentrations of metals in the air and soil. EPA air technical staff will also be providing information on technologies available to control emissions from glass manufacturing facilities.

#### Update Federal Emissions Standards for Area Sources

EPA has three national standards that potentially apply to art glass manufacturing plants. Whether a standard applies can depend on a number of factors, such as startup date, type of furnace, and the amount of glass produced. There is a National Emissions Standards for Inorganic Arsenic Emissions from Glass Manufacturing Plants regulation issued in 1986, Standards of Performance for New Glass Manufacturing Plants issued in 1980, and a National Emissions Standard Hazardous Air Pollutants for Glass Manufacturing Area Sources regulation issued in 2007.

The art glass plants in Portland are subject to the 1986 standard, but not the 1980 standard and perhaps not the 2007 standard. The 1980 standard applies to sources constructed on (or after) June 15, 1979. These plants were constructed prior to 1979 and, thus, are not subject to this standard. The 2007 NESHAP applies to continuous furnaces, which tend to be higher producers of glass. The information available to EPA at the time the rule was issued indicated that those were the most significant-emitting sources in the industry. Pot and tank furnaces, which typically produce smaller amounts of glass and are used in many art glass facilities, are not covered by the rule. We are in the process of confirming that these plants are not subject to this standard.

In your letter, you urged the EPA to begin the process of updating these federal standards and, as appropriate, consider reclassifying these plants as a unique category or subcategory. At this time, we are gathering information to understand better art glass manufacturing plants across the country – e.g., locations, air emissions, pollution controls, business operations, etc. Our current information indicates that there are approximately 13 significant art glass manufacturing plants located mostly in the western U.S. or in parts of the eastern U.S. Further understanding of these facilities will inform what actions we take to review and, if necessary, revise the current federal emission standards. Our immediate attention will continue to be taking responsive and appropriate action to deal with the air quality concerns raised in Portland.

You also suggested that the EPA convene a group of industry, public health, and other appropriate stakeholders and experts to identify technological or process improvements that could reduce emissions from these sources in the near-term. I wish to note that thanks to the efforts of the state, the companies have volunteered to stop using the chemicals of concern. While this might provide immediate relief, it may not provide the longer-term relief needed either for the companies or the surrounding communities. So, continued collection of information about art glass manufacturing plants across the country will be important to determine how these plants can best operate in an environmentally safe manner. EPA and state representatives are currently having discussions on controlling air pollution from these plants and will involve the individual plants, as necessary. We will also consider the best means of having the broader discussions you suggested.

#### Air Quality Monitoring

Because many air toxics problems tend to be local in nature, the ability and responsibility for conducting air monitoring to understand these problems often rests with state and local air agencies. The Oregon Department of Environmental Quality, in particular, has a long-standing record of proactively doing air monitoring to investigate air toxics concerns. A timeline for the many steps they have taken to



characterize air toxics in Portland is available on their website:  
<http://www.deq.state.or.us/nwr/docs/metalsem/FSMetalsTimeline.pdf>

EPA's air toxics monitoring efforts are largely complementary to state and local efforts and include: (1) EPA's long-term National Air Toxics Trends Sites (NATTS) operating in 27 cities, including Portland (near the Uroboros Glass facility), and (2) providing grant funding to state, local, and tribal air agencies for air monitoring and supporting a competitive grant program for community-scale air toxics monitoring. Since 2003, EPA has provided \$26.8M for 70 projects across the country. Last year alone, we provided more than \$5M for 11 projects.

Finally, EPA, through both its Office of Research and Development and Office of Air and Radiation, is committed to evaluating newer sensor technology for air pollutants, such as air toxics, with the hope that this technology can help with air quality characterization in many more locations than we are currently able to monitor. While this technology is not sufficiently advanced today for most air toxics pollutants, EPA expects advancements to occur in the years ahead.

I hope that these responses...

Sincerely,

Dennis McClerran  
Regional Administrator

Company Name	Street Address	Region	City	State	Zip	Phone	Notes
1 Steuben	One Museum Way	2	Corning	NY	14830	607 937-5371	fabricator?
2 Blenko Glass	9 Bill Blenko Dr.	3	Milton	WV	25541	304 743-9081	
3 Youghiogheny Glass	300 S 1st Street	3	Connellsville	PA	15425	724 628-3000	
4 Wissmach Glass	420 Stephen St.	3	Paden City	WV	26159	304 337-2253	
5 Fenton Glass	700 Elizabeth St	3	Williamstown	WV	26187	304 375-6122	closed but permitted
6 Armstrong Glass	55 Chastain Road NW	4	Kennesaw	GA	30144	770 919-9924	
7 Origin Glass (Elan Technologies)	169 Elan Court	4	Midway	GA	31320	912 880-3526	
8 Parramore Glass	PO BOX 2777	4	Asheville	NC	28802	828 <del>456-4414</del>	
9 Franklin glass	222 East Sycamore St	5	Columbus	OH	43206	614 221-2972	
10 Kokomo Glass	1310 S. Market St.	5	Kokomo	IN	46902	765 457-8136	
11 Pacific Art Glass	125 West 157th St	9	Gardena	CA	90248	310 780-4047	fabricator?
12 Uroboros Glass	2139 N. Kerby Ave. SE	10	Portland	OR	97227	503 284-4900	
13 Spectrum Glass	21415 87th Avenue SE	10	Woodinville	WA	98072	425 483-6699	
14 Bullseye glass	3722 SE 21st Ave	10	Portland	OR	97202	503 232-8887	
15 System 96	24105 Snohomish-Woodinvile Road	10	Woodinville	WA	98072	425 483-6699	fabricator?
16 Northstar Glassworks	8228 SE 26th Place	10	Portland	OR	97202	866 684-6986	makes colored borosilicate glass
17 Trautman Art glass		10	Portland	OR			
18 Glass Alchemy		10	Portland	OR			
19 Momka's Glass	19580 23rd Avenue NE	10	Arlington	WA	98223	425 776-3417	

**Cell:** P11  
**Comment:** Susan Fairchild:  
2005 TRI

**Cell:** T11  
**Comment:** Susan Fairchild:  
2014 TRI

**Cell:** U11  
**Comment:** Susan Fairchild:  
2014 TRI

**Cell:** O18  
**Comment:** Susan Fairchild:  
2005 TRI

FACILITIES REMOVED FROM LIST

1 Fenton Glass	700 Elizabeth St	Williamstown	WV 26187 304 375-6122
2 Spectrum Glass	955 W. Terra Lane	O'Fallon	MO 63366 636 614-0067
3 CiM		Seattle	WA

now shut down 2010 last report to TRI Ba, Pb, Zn, Arsenic NESHAP  
fabricator  
imports glass from china

From: Janet McCabe  
To: Regional Air Division Directors  
CC: OECA, Regional Administrators, Deputy Regional Administrators  
Re: Art Glass Manufacturing

I am writing to make you aware of an air toxics situation that has been taking place in Region 10 and ask your assistance as we work to understand the national implications of this situation. In this letter I am summarizing the situational background as well as the ways in which EPA is supporting Oregon to respond. My hope is that you were able to attend today's special purpose call so have a good understanding of the situation on the ground in Portland. My specific asks of you moving forward are:

1. Provide any information you currently have about the sources we've identified (attached), and if you are aware of any additional art (or colored) glass manufacturing facilities not on this list.
2. Communicate with your states to:
  - a. Ensure they are aware of the issues associated with these sources in Oregon
  - b. Offer your assistance in determining whether there are similar emissions of concern associated with these sources
  - c. Request your states to provide any information they have about these sources
3. Let me know if your Region has special expertise in this type of facility or control of these types of pollutants

### **Background**

The U.S. Forest Service (USFS), in a pilot study, found moss collected from trees around art glass manufacturers in the Portland area—and Bullseye Glass in particular—had much higher concentrations of heavy metals than other areas in the city. This result prompted Oregon Department of Environmental Quality (ORDEQ) to set up air monitoring systems near the company to collect 24-hour air samples every few days over a 30-day period in October 2015.

In early February, ORDEQ made publicly available the results of that air monitoring, which showed high levels of cadmium and arsenic in the air and began investigating potential sources. Preliminary work suggests that the metals found in the monitoring were coming in large part from Bullseye Glass, an art glass manufacturing facility. Elevated cadmium levels were also found in proximity to another Portland glass manufacturer, Uroboros Glass. Both companies have suspended the use of chromium, cadmium and arsenic.

The EPA has identified 14 other similar facilities, which like Bullseye and Uroboros, may manufacture art glass and may use raw metals in their processes. There is a glass manufacturing NESHAP (Subpart SSSSSS) for area sources, though this rule applies to facilities that use continuous furnaces and produce more than 50 tons of glass per year using raw minerals. Based on the information we have, facilities such as Bullseye and perhaps others, do not meet the applicability requirements for this NESHAP.

### **EPA Assistance**

The EPA has been fully engaged to support Oregon and others as this situation has developed, including supporting efforts to identify all art glass producers that might have similar issues and all other sources of metals emissions in Oregon.

#### In Region 10:

- Staff and management are working closely with state partners to provide significant assistance to the Oregon Department of Environmental Quality (ORDEQ) and the Oregon Health Authority (OHA). Oregon has set up an incident command structure for managing this issue, and the Region 10 Operations Office is part of the team, helping to coordinate EPA's assistance as a part of the state's ongoing work.
- EPA Region 10's focus has been on supporting Oregon to work directly with impacted facilities and to provide assistance in the development of air and soil sampling programs. Last week, EPA Region 10 enforcement staff, including an expert on glass manufacturing facilities, conducted joint inspections with ORDEQ of Bullseye Glass Company and Uroboros Glass. The EPA's engineers and technical specialists from across the country<sup>1</sup> have participated in subsequent technical meetings with ODEQ and Bullseye Glass to provide guidance on analytical methods to characterize the sources and information on technologies available to control emissions from glass manufacturing facilities. We have supported Oregon in their actions to secure agreements from the companies to stop using the compounds that are associated with the toxic emissions found in the air monitoring until other solutions can be developed.
- For the assessment of impacts, EPA Region 10 loaned air monitoring equipment and provided supplies to ODEQ for collection of air samples to analyze for heavy metals. The EPA also loaned ODEQ equipment to analyze soil samples and offered access to one of the EPA's science and technical assistance contractors. The EPA air and cleanup staff are assisting in the development of air and soil sampling programs. The EPA risk assessors are working with the OHA, Multnomah County Health Department, and the Agency for Toxic Substances and Disease Registry (ATSDR) to help assess and communicate the public health risks using the limited data currently available and will refine the assessment as more information becomes available on concentrations of metals in the air and soil.

#### At Headquarters:

- Relevant experts from the Office of Air and Radiation (OAR) and Office of Research and Development (ORD) are providing technical support to Region 10 on source testing, health impacts of air toxics levels and other monitoring and impacts issues as they arise.
- The Office of Enforcement and Compliance Assistance (OECA) and the Office of General Counsel (OGC) are investigating the potential use of authority under Clean Air Act Section 114 to request additional information from these and similar facilities nationally.
- Office of Air Quality Planning and Standards (OAQPS) is working to develop emission estimates for art glass manufacturing facilities and, in collaboration with OGC and OECA, determining both the applicability of the current standards to these facilities and the need for new or revised standards.
- The OAQPS and ORD are collaborating to assess the viability of the original USFS study as a screening methodology for air toxics and review screening modeling by state of Washington. This will help determine whether this modeling can be applied to other art glass manufacturing facilities.

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<sup>1</sup> We added experts to our team from Region 7, which has worked extensively with the development of the Wool Fiberglass Rule to determine and address hexavalent chromium emissions in EJ neighborhoods. Also, OAQPS' Measurement Technology Group is providing guidance and information on hexavalent chromium methods. The National Risk Management Laboratory provided background materials on chromium reactions at high temperatures.

- The OAQPS is also considering the feasibility of using the Community Scale Air Toxics Ambient Monitoring funds (FY16) to reimburse ODEQ for Portland monitoring and conduct new monitoring around other plants.



From: Janet McCabe  
To: Regional Air Division Directors  
CC: OECA, Regional Administrators, Deputy Regional Administrators  
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## EPA Assistance

The EPA has been fully engaged to support Oregon and others as this situation has developed, including supporting efforts to identify all art glass producers that might have similar issues and all other sources of metals emissions in Oregon.

### In Region 10:

- Staff and management are working closely with state partners to provide significant assistance to the ODEQ and the Oregon Health Authority (OHA). Oregon has set up an incident command structure for managing this issue, and the Region 10 Operations Office is part of the team, helping to coordinate EPA's assistance as a part of the state's ongoing work.
- EPA Region 10's focus has been on supporting Oregon to work directly with impacted facilities and to provide assistance in the development of air and soil sampling programs. Two weeks ago, EPA Region 10 enforcement staff, including an expert on glass manufacturing facilities, conducted a joint inspections with ODEQ of Bullseye Glass Company and inspection of Uroboros Glass. EPA subsequently inspected Spectrum Glass in Washington State and a joint inspection with ODEQ of Northstar Glassworks in Portland. The EPA's engineers and technical specialists from across the country<sup>1</sup> have participated in subsequent technical meetings with ODEQ and Bullseye Glass to provide guidance on analytical methods to characterize the sources and information on technologies available to control emissions from glass manufacturing facilities. We have supported Oregon in their actions to secure agreements from the companies to stop using the compounds that are associated with the toxic emissions found in the air monitoring until other solutions can be developed.
- For the assessment of impacts, EPA Region 10 loaned air monitoring equipment and provided supplies to ODEQ for collection of air samples to analyze for heavy metals. The EPA also loaned ODEQ equipment to analyze soil samples and offered access to one of the EPA's science and technical assistance contractors. The EPA air and cleanup staff have offered assistance in the development of air and soil sampling programs. The EPA risk assessors are working with the OHA, Multnomah County Health Department, and the Agency for Toxic Substances and Disease Registry to help assess and communicate the public health risks using the limited data currently available and will refine the assessment as more information becomes available on concentrations of metals in the air and soil.

### At Headquarters:

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- The Office of Enforcement and Compliance Assistance (OECA), the Office of General Counsel (OGC) and OAQPS are jointly investigating the applicability of Part 63 SSSSSS to these and similar facilities nationally.
- OECA and Region 10 have also discussed potential use of authority under Clean Air Act Section 114 to request additional information from facilities nationwide.

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<sup>1</sup> Region 10 added experts to our team from Region 7, which has worked extensively with the development of the Wool Fiberglass Rule to determine and address hexavalent chromium emissions in EJ neighborhoods. Also, OAQPS' Measurement Technology Group is providing guidance and information on hexavalent chromium methods. The National Risk Management Laboratory provided background materials on chromium reactions at high temperatures.

- OAQPS is working to develop emission estimates for art glass manufacturing facilities.
- The OAQPS and ORD are collaborating to assess the viability of the original USFS study as a screening methodology for air toxics and review screening modeling by state of Washington. This will help determine whether this modeling can be applied to other art glass manufacturing facilities.
- The OAQPS is also considering the feasibility of using the Community Scale Air Toxics Ambient Monitoring funds (FY16) to reimburse ODEQ for Portland monitoring and conduct new monitoring around other plants.

To: Governor Katherine Brown

From: Gina McCarthy

Re: Portland Air Toxics

I am following up on our conversation of February 23, 2016. I want to reiterate that the United States Environmental Protection Agency (EPA) fully supports the work of Oregon in responding to the air toxics problems identified in Portland. In addition, I am committed to looking nationally at comparable art (or colored) glass manufacturing facilities to ensure that elevated levels of air toxics are not occurring elsewhere.

The EPA's Regional and Headquarter staff will continue to fully support Oregon Department of Environmental Quality and Oregon Health Authority as they work to address the technical and policy actions needed in Portland. In addition, I have directed staff in relevant offices across the EPA to take further steps to investigate similar art glass manufacturing facilities in other states.

I am attaching for your reference an email sent from Acting Assistant Administrator for the Office of Air and Radiation, Janet McCabe, to the Air Division Directors in all EPA's Regional Offices. This note summarizes the ongoing activities to support Oregon, and directs each Region to investigate the potential national implications of the findings in Portland.

Please know that my staff and I stand ready to assist you and commit to exploring further what else can be done, in Oregon and across the nation.

EPA has a number of ongoing actions to support Oregon. We have been working closely with our state partners at the staff and management level, providing significant assistance to the Oregon Department of Environmental Quality (ODEQ) and the Oregon Health Authority (OHA). Oregon has set up an incident command structure for managing this issue, and our Operations Office is part of the team, helping to coordinate EPA's assistance as a part of the state's ongoing work.

EPA Region 10's focus has been on supporting Oregon in working directly with the facilities and in providing assistance in the development of air and soil sampling programs. Last week, EPA Region 10 enforcement staff, including an expert on glass manufacturing facilities, conducted joint inspections with Oregon DEQ of the two art glass facilities of concern in Portland, Bullseye Glass Company and Uroboros Glass. EPA's engineers and technical specialists from across the country<sup>1</sup> have participated in subsequent technical meetings with ODEQ and Bullseye Glass to provide guidance on analytical methods to characterize the sources and information on technologies available to control emissions from glass manufacturing facilities. We have supported Oregon in their actions to secure agreements from the companies to stop using the compounds that are associated with the toxic emissions found in the air monitoring until other solutions can be developed.

For the assessment of impacts, EPA Region 10 loaned air monitoring equipment and provided supplies to ODEQ for collection of air samples to analyze for heavy metals. EPA also loaned ODEQ equipment to analyze soil samples and offered access to one of the EPA's science and technical assistance contractors. The EPA air and cleanup staff are assisting in the development of air and soil sampling programs. The EPA risk assessors are working with the OHA, Multnomah County Health Department, and the Agency for Toxic Substances and Disease Registry (ATSDR) to help assess and communicate the public health risks using the limited data currently available and will refine the assessment as more information becomes available on concentrations of metals in the air and soil.

As a next step, we are asking for information from other Regions that potentially have these kind of facilities. They will be working with affected states to compile information on these plants. [In Washington State, EPA partnered with the Puget Sound Clean Air Agency to inspect Spectrum Glass, the largest art glass manufacturing facility in the U.S. We are following up to review information about that facility.]

**Commented [HJ1]:** I don't think we want to call this out at this time, but I'm including the information for now.

Additional work on the national front (see Mike's outline, next page):

- Source Characterization – 114 letters
- Emissions estimates
- Federal Standards – applicability and possible revisions
- Air quality monitoring
- Health impacts assessments

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<sup>1</sup> We added experts to our team from Region 7, which has worked extensively with the development of the Wool Fiberglass Rule to determine and address hexavalent chromium emissions in EJ neighborhoods. Also, Steffan Johnson of OAQPS's Measurement Technology Group has been providing guidance and information on hexavalent chromium methods, and he has participated in calls with R10, ODEQ, and Bullseye to give technical advice on what monitoring may be needed. The National Risk Management Laboratory has provided background materials on chromium reactions at high temperatures.

Mike's outline:

#### Regional/State Outreach

1. Reach out to Regions with art glass plants to review Portland situation and to understand other Regions' perspectives (special purpose call on Feb 24)
  - \* ask Regions to talk with affected states
  - \* get information on other plants (e.g., permit limits, pollution controls, etc)

#### Source Characterization

1. Work with R10 on source testing (AQAD)
2. Discuss 114 letters in R10 and possibly other Regions (OECA, OGC)
3. Develop emission estimates for art glass plants (AQAD, SPPD)

**Commented [HJ2]:** Move upfront, to Oregon-specific discussion?

#### Federal Standards

1. Determine applicability of current standards (OGC, OECA, SPPD)
2. Assess need for revised/new standards (SPPD)

#### Air Quality

1. Assess viability of USFS mods study as a screening methodology for air toxics (ORD, AQAD)
2. Review screening modeling by state of Washington. Consider applying this modeling to other art glass plants (HEID, AQAD)
3. Consider use of CSATM funds (FY16) for special air toxics monitoring (AQAD):
  - \* reimburse ODEQ for Portland monitoring
  - \* conduct new monitoring around other plants
4. Provide technical assistance to ODEQ, as appropriate
5. Address questions re: health impacts of air toxics levels (HEID)

**Commented [HJ3]:** Move upfront, to Oregon-specific discussion?

Background:

- Oregon found high levels of cadmium and arsenic based on a moss study by the USFS
- They deployed ambient monitors (including one directly next to Bullseye Glass, where the highest moss metal concentrations had been).
- ~~The bullseye monitor near Bullseye Glass~~ registered values for Arsenic 158 times the Oregon health benchmark and 49 times the cadmium benchmark. Total chromium was 894 times the benchmark for hexavalent chromium (the analysis did not speciate chromium). Even if only a small fraction is hex chrome (a very toxic pollutant), then the measured ambient value would be many times the Oregon health benchmark. Due to the toxicity of hexavalent chromium, this could represent there is a huge public health issue.
- We do not have monitoring directly ~~adjacent next~~ to any other glass facilities at this time. We know that the largest art glass manufacturer in the country is located in Woodinville, WA (Spectrum Glass).
- Oregon is leading the effort and has been busy with public meetings and health issues.
- Many EPA staff are engaged in R10, OECA, and OAR to understand and digest this issue source.

Sources identified

- Bullseye Glass — Portland, OR
- Uroboros Glass — Portland, OR
- Spectrum Glass — Woodinville, WA
- Others nationally — <10 other big ones — Reached out to R5 and need to reach out to others. Specifically know that there are large plants in Ohio and West Virginia.

Source specific Work

- Bullseye and Uroboros have voluntarily stopped using any cadmium or arsenic (Uroboros was already not using arsenic). However, both use hexavalent chromium as a colorant and have not stopped use since it has not been highlighted like the other compounds.
- DEQ and EPA have inspected Bullseye and Uroboros (EPA on 2/10 and 2/11). We hope to inspect Spectrum next week
- We are evaluating compliance with all applicable requirements and reviewing applicability determinations and interpretations since all are not subject to the area source glass mact. Only two potentially applicable federal rules: Part 61 subpart N and Part 63 subpart SSSSS
- We are evaluating our CAA 303 authority which may be appropriate depending on state action. The state is still currently the lead.

Monitoring Work

- EPA is overnighting two ambient air monitors to Oregon. They are also deploying monitors to get further data on air emissions over longer periods and at different locations.
- We have worked with DEQ to try to ensure that the monitors can speciate the chromium so that we can determine the hexavalent fraction.
- We should strongly consider monitoring at Woodinville.

Outreach

- DEQ is taking the lead on all outreach
- EPA was not mentioned by the public or DEQ during the public meeting.
- We have produced a desk statement.



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## **PROCESSING ERROR**

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File: ED\_000719\_00017663.msg

**To:** Gable, Debra[Gable.Debra@epa.gov]; Downey, Scott[Downey.Scott@epa.gov]; Franklin, Richard[Franklin.Richard@epa.gov]; Hedgpeth, Zach[Hedgpeth.Zach@epa.gov]; matt.hoffman (matt.hoffman@multco.us)[matt.hoffman@multco.us]; McClintock, Katie[McClintock.Katie@epa.gov]; Kaetzel, Rhonda[Kaetzel.Rhonda@epa.gov]; armitage.sarah@deq.state.or.us[armitage.sarah@deq.state.or.us]; SIFUENTES Julie (julie.sifuentes@state.or.us)[julie.sifuentes@state.or.us]; Todd Hudson (todd.hudson@state.or.us)[todd.hudson@state.or.us]  
**Cc:** Narvaez, Madonna[Narvaez.Madonna@epa.gov]  
**From:** Koprowski, Paul  
**Sent:** Wed 2/17/2016 6:37:41 PM  
**Subject:** Monitoring plan and Tubman Study links  
[Monitoring and analysis plan for metals assessment around Bullseye Glass....docx](#)

Per our conversation this morning I'm sending these two items.

The draft monitoring plan is attached. This was provided on 2/11 and may have changed since then. I have not received an update to it.

Here's a link to the Harriet Tubman site with all the information about the study.

<http://archive.epa.gov/schoolair/web/html/harriettub.html>

I'd like to point out the document here:

<http://www3.epa.gov/air/sat/pdfs/UsesOfHealthEffectsInfoinEvalSampleResults.pdf>

This document has a discussion of the screening values used for the study including how they were derived and how EPA decided to use the data collected. This is the portion of the work I mentioned this morning and I hope you all have some time to take a look at it and think about how/if it would be useful to use this information in communicating with the public about the risk in SE PDX. In particular, the screening level for hexavalent chromium on page 6 of this document is 580 nanograms per cubic meter. When I saw this and compared it to the 18 samples I saw that only two of those results, for total chrome, were high, 406 and 439. All the rest were double digits. Since the screening values for the school study were conservative, i.e. air toxics near schools, would it be appropriate and helpful for us to use this work as a yardstick for

communicating the risk associated with the SE PDX monitoring. I would also to consider using these screening values for the work at Hayden Island. Again, there's good documentation associated with how these levels were derived so why reinvent the wheel?

Paul

Paul Koprowski

U.S. EPA; Oregon Operations Office

805 SW Broadway, Suite 500

Portland, Oregon 97205

(503) 326-6363

## Monitoring and analysis plan for metals assessment around Bullseye Glass.

### Introduction

### Method

#### **Sampling locations**

Sampling will be done in four directions emanating from Bullseye Glass. The Samplers will be place near areas where children play. Children are especially susceptible to air toxics because they run around more causing them to breathe more air and they are still growing and developing.

The three sites near children's play areas are near the Powell Park field across from Cleveland High School, near Winterhaven Elementary School, and at the Daycare just south of the Fred Meyers Head Quarters building. A fourth site will be set up to the northwest of Bullseye to capture the pollutants going over the business district. Wind data collected in October showed most of the elevated days occurred when the wind was blowing from the SE to the NW. This site will capture those samples.



A proposed sampling map for metals monitoring near Bullseye Glass.

Start dates –

## Site Timing

Daycare started on Feb 9<sup>th</sup> running 6am to 6pm samples.

Fred Meyer parking lot or next door at Powell Park. Awaiting power drop - This will start 2/17.

Winterhaven is waiting on power from the City or Portland Parks 2/17.

Site to the North can start on Feb 12<sup>th</sup>.

Met sites all ready operational at Reed College and next to Bullseye.

## Sampling methods

### PM10 Metals

DEQ is going to use two methods to collect data around Bullseye because of equipment limitations and difficulty getting power to some of the sites. DEQ has low volume (LV) BGI samplers and Low volume Air Metrics (16.7lpm) samplers which run on battery power. These will be deployed in areas where we can't get power to run the Hi Volume samplers.

The LV method uses the EPA School Air Toxics metals low volume (LV) sampler method with flow of 16.7LPM. The filter media is Teflon and the analysis is done using ICP-MS.

The HV method is EPA TO-15 which uses a Hi-Volume (HV) sampler (40 cfm) to collect samples from midnight to midnight at 40 cfm. The filter media is quartz. The analysis is done using ICP-MS. This is a NATTS TAD method.

Both methods are EPA approved methods but may result in slightly different measurements. A collocated site will help us tie these two methods together to see how well they agree. The HV method is also used at three other sites in Portland.

### TSP Hexavalent Chrome

DEQ will deploy a 15lpm, flow controlled sampler (BGI sampler) with a Chrome 6+ sampler. This is a NATTS TAD method.

### Continuous sampling

DEQ will also deploy a portable Met One E-Sampler (nephelometer) to track diurnal patterns. This will show when most of the particulate is occurring. This will be deployed at the daycare.

### Meteorology

DEQ will also include wind speed and wind direction met stations that sit on top of roof tops. Met One 010 Wind Speed sensor, 020 Wind direction, with Campbell data logger.

## Sampling Calendar.

### Daycare schedule:

<b>February</b>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
				Prep samplers	Set up site, set up sample, Audit sampler	
7 Primary 2 Tentative start	8 Sample 6am to 6pm for DHS	9 Sample 6am to 6pm for DHS	10 Sample 6am to 6pm for DHS	11 Sample 6am to 6pm for DHS	12 Sample 6am to 6pm for DHS	13 Sample 24 hrs for DEQ
14 Sample 24 hrs for DEQ	15 Sample 6am to 6pm for DHS	16 Sample 6am to 6pm for DHS + field blank	17 Sample 6am to 6pm for DHS	18 Sample 6am to 6pm for DHS	19 Sample 6am to 6pm for DHS	20 Sample 24 hrs for DEQ
21 Sample 24 hrs for DEQ	22 Set up and retrieve sample	23	24 Primary 1 & 2	25 Set up and retrieve sample	26	27 Sample 24 hrs for DEQ
28 Set up and retrieve sample	29 Set up and retrieve sample	1-Mar Sample 24 hrs for DEQ	2 Follow EPA 1/6 schedule going forward	3	4	5

Winterhaven, Fred Meyer Parking lot, and NW site schedule.

<b>February</b>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4 Prep samplers	5 Set up site, set up sample, Audit sampler	6
7 Primary 2 Tentative start	8 Sample 6am to 6pm for DHS	9 Sample 6am to 6pm for DHS	10 Sample 6am to 6pm for DHS	11 Sample 6am to 6pm for DHS	12 Sample 6am to 6pm for DHS	13 Sample 24 hrs for DEQ
14	15 Sample 6am to 6pm for DHS	16 Sample 6am to 6pm for DHS + field blank	17 Sample 6am to 6pm for DHS	18 Sample 6am to 6pm for DHS	19 Sample 6am to 6pm for DHS	20 Sample 24 hrs for DEQ
21 Sample 24 hrs for DEQ	22 Set up and retrieve sample	23	24 Sample 24 hrs for DEQ	25 Set up and retrieve sample	26	27 Sample 24 hrs for DEQ
28 Set up and retrieve sample	29 Set up and retrieve sample	<b>1-Mar</b> Sample 24 hrs for DEQ	2 <b>Follow EPA 1/6 schedule going forward</b>	3	4	5



## EPA Briefing on Bullseye and associated other art glass facilities 2-11-16

### Background:

- Oregon found high levels of cadmium and arsenic based on a moss study by the USFS
- They deployed ambient monitors (including one directly next to Bullseye Glass, where the highest moss metal concentrations had been).
- The bullseye monitor near Bullseye Glass registered values for Arsenic 158 times the Oregon health benchmark and 49 times the cadmium benchmark. Total chromium was 894 times the benchmark for hexavalent chromium (the analysis did not speciate chromium). Even if only a small fraction is hex chrome (a very toxic pollutant), then the measured ambient value would be many times the Oregon health benchmark. Due to the toxicity of hexavalent chromium, this could represent there is a huge public health issue.
- We do not have monitoring directly adjacent next to any other glass facilities at this time. We know that the largest art glass manufacturer in the country is located in Woodinville, WA (Spectrum Glass).
- Oregon is leading the effort and has been busy with public meetings and health issues.
- Many EPA staff are engaged in R10, OECA, and OAR to understand and digest this issue source.

### Sources identified

- Bullseye Glass — Portland, OR
- Uroboros Glass — Portland, OR
- Spectrum Glass — Woodinville, WA
- Others nationally — <10 other big ones — Reached out to R5 and need to reach out to others. Specifically know that there are large plants in Ohio and West Virginia.

### Source specific Work

- Bullseye and Uroboros have voluntarily stopped using any cadmium or arsenic (Uroboros was already not using arsenic). However, both use hexavalent chromium as a colorant and have not stopped use since it has not been highlighted like the other compounds.
- DEQ and EPA have inspected Bullseye and Uroboros (EPA on 2/10 and 2/11). We plan to hope to inspect Spectrum next week
- We are evaluating compliance with all applicable requirements and reviewing applicability determinations and interpretations since all are not subject to the area source glass MACT rule. Only two potentially applicable federal rules: Part 61 subpart N and Part 63 subpart SSSSS
- We are evaluating our CAA 303 authority which may be appropriate depending on state action. The state is still currently the lead.

### Monitoring Work

- ODEQ is consolidating all the monitoring efforts into a plan that they shared with EPA this morning. At their request, EPA is overnighting two ambient air monitors to Oregon. They are also deploying monitors plan to get further data on air emissions over longer periods and at different locations, including the daycare center.
- We have worked with DEQ to try to ensure that the monitors can speciate the chromium so that we can determine the hexavalent fraction.

EPA Briefing on Bullseye and ~~associated other art glass~~ facilities 2-11-16

- We should strongly consider monitoring at Woodinville, ~~after evaluating what we find during the inspection next week.~~

**Outreach**

- DEQ is taking the lead on all outreach.
- EPA was not mentioned by the public or DEQ during the public meeting.
- ~~We have produced a desk statement.~~
- ~~Tony Barber has responded via email to one citizen letter. We received a second letter today.~~

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